

WHAT IS CLAIMED IS :

1. A RF signal detecting apparatus of liquid crystal display for receiving a RF signal emitted from a pen input device, thus detecting a horizontal position and a vertical position when inputting by pen, the apparatus comprising:

a liquid crystal panel displaying images according to a liquid crystal driving signal;

a plurality of gate lines driven by the liquid crystal driving signal and at the same time receiving RF signals emitted from the pen input device;

a plurality of source lines driven by the liquid crystal driving signal and at the same time receiving RF signals emitted from the pen input device;

a first signal detecting means for detecting a RF signal corresponding to a horizontal position from the RF signals received through the plurality of source lines;

a second signal detecting means for detecting a RF signal corresponding to a vertical position from the RF signals received through the plurality of gate lines; and

a location calculating means for calculating a horizontal position and a vertical position when inputting by pen from the RF signals detected by the first and second signal detecting means,

wherein the first signal detecting means is located within a corresponding source driver IC, and the second signal detecting means is located within a corresponding gate driver IC.

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2. The RF signal detecting apparatus according to claim 1, wherein the RF signals have a frequency band of 30~40 MHz.

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3. The RF signal detecting apparatus according to claim 1, wherein the location calculating means is located within a timing controller to calculate the horizontal position and the vertical position from the RF signals received by the plurality of source lines and the plurality of gate lines, respectively.

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4. The RF signal detecting apparatus according to claim 1, wherein the vertical position is calculated based on the RF signal received through the plurality of gate lines.

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5. The RF signal detecting apparatus according to claim 1, wherein the horizontal position is calculated based on the RF signal received through the plurality of source

lines.

6. The RF signal detecting apparatus according to claim 1, wherein the location calculating means is serially
5 communicated with a system interface board via a serial interface.

7. A method for detecting a RF signal of a liquid crystal display, by receiving a RF signal emitted from a pen
10 input device and thus detecting a horizontal position and a vertical position when inputting by pen, the method comprising the steps of:

receiving RF signals emitted from the pen input device through a plurality of gate lines and a plurality of source
15 lines;

detecting RF signals corresponding to a horizontal position and a vertical position from the RF signals received through the plurality of source lines and the plurality of gate lines, respectively; and

20 calculating the horizontal position and the vertical position from the detected RF signals.

8. The method according to claim 7, wherein the vertical position is calculated based on the RF signal

received through the plurality of gate lines.

9. The method according to claim 7, wherein the
horizontal position is calculated based on the RF signal
5 received through the plurality of source lines.